Emerald Ash Borer

An exotic beetle from Asia was discovered in July 2002 feeding on ash (*Fraxinus* spp.) trees in southeastern Michigan. It was identified as *Agrilus planipennis* Fairmaire (Coleoptera: Buprestidae).

The Emerald Ash Borer belongs to a group of insects known as metallic wood-boring beetles. Adults are dark metallic green in color, 1/2 inch in length and 1/16 inch wide, and are only present from mid May until late July. Larvae are creamy white in color and are found under the bark.

The emerald ash borer generally has a one-year life cycle in Northern Indiana but could require two years to complete a generation in colder regions. Adult beetle emergence begins in early June, peaks in late June and early July, and continues into late July. Beetles usually live for about 3 weeks and are present into mid-August. Adult beetles are active during the day, particularly when conditions are warm and sunny. Most beetles remain in protected locations in bark crevices or on foliage during rain, heavy cloud cover, high winds, or temperatures above 90^{o}F. Beetles feed on ash foliage, usually in small, irregularly-shaped patches along the margins of leaves.

The borer's host range is limited to species of ash trees (identified by their distinctive leaves, which are located directly across from each other on the leaf stem, and bark). In Indiana, most ash trees are white, black or green. Emerald Ash Borer does not attack mountain ash, which is not related to white, black, or green ash trees.

Usually their presence goes undetected until the trees show symptoms of infestation – typically the upper third of a tree will die back first, followed by the rest the next year. This is followed by a large number of shoots or sprouts arising below the dead portions of the trunk.

The adult beetles typically make a D-shaped exit hole when they emerge. Tissue produced by the tree in response to larval feeding may also cause vertical splits to occur in the bark. Distinct S-shaped tunnels may also be apparent under the bark.

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Healthy ash leaf with leaves located directly across from each other on the leaf stem and bark.


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Frequently Asked Questions about Emerald Ash Borer

Where did the emerald ash borer come from? The natural range of Agrilus planipennis, or the emerald ash borer, is eastern Russia, northern China, Japan, and Korea. Before June of 2002, it had never been found in North America.

What types of trees does the emerald ash borer attack? In Indiana it has only been found in ash trees. Trees in woodlots as well as landscaped areas are affected. For the most part, affected trees or branches appear to be at least 2 inches in diameter and larger. All species of North American ash appear to be susceptible.

What happens to infested ash trees? The canopy of infested trees begins to thin above infested portions of the trunk and major branches because the borer destroys the water and nutrient conducting tissues under the bark. Heavily infested trees exhibit canopy die-back usually starting at the top of the tree. One-third to one-half of the branches may die in one year. Most of the canopy will be dead within 2 years of when symptoms are first observed. Sometimes ash trees push out sprouts from the trunk after the upper portions of the tree dies. Although difficult to see, the adult beetles leave a "D"-shaped exit hole in the bark, roughly 1/8 inch in diameter, when they emerge in June.

What do emerald ash borers look like? The adult beetle is dark metallic green in color, 1/2 inch-long and 1/8 inch-wide.

What is the life cycle of this borer? The beetle appears to have a one-year life cycle. Adults begin emerging in mid to late June with peak emergence in early July. Egg-laying occurs soon after adult emergence. After hatching, the borer goes through several larval stages in July, August and September, when it tunnels under the bark and damages the tree. It over winters as a larva in the sap wood or bark and pupates in late spring.

What is being done on a statewide basis about this new pest? Agencies are working together to educate Indiana citizens about detecting the emerald ash borer, how to protect valuable trees, when it is too late to save trees, and where trees can be taken for disposal. We have started an intensive survey and detection program as the first step of a plan to contain the infestation. Several insecticide products are available to homeowners for control of emerald ash borer (EAB). Treatments are needed every year in order to protect ash trees from EAB. Insecticide products available for home use include Bayer Advanced Garden™ Tree and Shrub Insect Control, Bonide® Systemic Insecticide Bullets and ACECAP ® 97 Systemic Insecticide Tree Implants. These treatments may help but will not solve the problem for the future. University professors and scientists are working on an answer that will hopefully provide a long-term solution.

How is this pest spread? The ash borer can be spread through movement of infested trees or in logs and firewood. It is critical not to move infested ash logs outside of the infested area. The beetles also fly well. We know they can fly at least a 1/2 mile from where they emerge.

Does it only attack dying or stressed trees? Healthy ash trees are also susceptible and may die within 1 – 3 years of becoming infested, unless they are treated with insecticides each year to prevent borer attack.

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